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PAPERS

IN

COLONIES AND TRADE.

COLONIES AND TRADE.

The GOLD MEDAL, being the Premium offered for Plantations of BREAD-FRUIT TREES, was this Session adjudged to the Honourable JOSEPH ROBLEY, Esq. President and Commander in Chief, in and over the Island of Tobago, and its Dependencies, &c. &c. from whom the following Accounts and Certificates were received.

SIR,

IN consequence of the premium offered for the cultivation of Plantations of the Bread-Fruit Trees, in the British Colonies in the West-Indies, by the Society instituted at London, for the encouragement of Arts, Manufactures and Commerce, I have now the honour to transmit to you some papers on the

subject of such a plantation on one of my estates in this island, which I request you to lay before the Society.

As the point of land on which the trees are planted is somewhat singular, both in soil and situation, I have judged it necessary to subjoin a plan of the land, the more clearly to convey to the Society an idea of what I have described to them in the paper which accompanies this letter, and to show the motives which induced me to select this point of land, rather than any other, for this purpose; and also, from a conviction, that if the utility of such land for Bread-Fruit Trees was made public, many pieces of similar land, in our West-India Colonies, might be very profitably employed for this purpose, which at present scarcely produce any provisions, or any other product for the benefit of the owners. I therefore hope the Society will not think that my narration is tedious.

An

An awkward circumstance occurs on the present occasion, with respect to the certificate to be transmitted to the Society, from my being in command of the island; but as I judged it necessary to comply literally with the Society's advertisement, I have herewith transmitted a certificate, signed by me, in my official capacity: I have also annexed a certificate of my principal manager; and I will transmit a certificate, signed by some of the Members of Council, and the Speaker of the House of Assembly, whenever I can procure their attendance to inspect those plants.

A difficulty also occurs in sending samples of the fruit, in conformity to the advertisement of the Society, because the fruit will not keep more than two weeks after it is taken from the tree, and therefore cannot be sent to England in its natural state. I will however endeavour, by drying, pickling, or preserving in spirit, to send some fruit

for the inspection of the Society; but if I succeed in this preservation, the sending them home must of necessity be deferred, till the sailing of the ships in April next, unless an opportunity offers sooner.

As the Society are already in possession of a full and faithful description of the amazing quantity of food which the Bread-Fruit Trees produce, and of the excellent quality of that food by Dr. Anderson's letter to the Society, dated St. Vincent, 24th December, 1797, and published in the 16th Vol. of their Transactions, perhaps it is not necessary for me to say any thing on a subject so well described to them already. I will, however, so far corroborate what Dr. Anderson says, that if I may judge from the amazing quantity of fruit produced by the three trees which I have here, and which have now been in bearing these six years, I am of opinion, that when the whole of the point of land

is

is planted, it will contain about 1300 trees; and I think it will be equal to the support, in the Bread-Fruit kind of provision, of nearly a thousand negroes, which I have on this and two neighbouring estates.

I am, SIR,

Your most obedient humble Servant,

JOSEPH ROBLEY.

Tobago Golden-Grove,
25th Aug. 1801.

Mr. CHARLES TAYLOR.

SIR,

HAVING written to you before on the subject of a plantation of Bread-Fruit Trees on one of my estates, called Golden Grove, in the parish of St. Patrick, in the island of Tobago, I shall now proceed to describe the point of land on which I have placed those trees, in

in the manner described in the annexed plan.

This point of land is bounded on one side by a beautiful salt-water lagoon, and at the east end it is bounded by a steep bank of lime-stone rock, in some places mixed with a loose dry soil. The bank is about fourteen feet high, stretches from the lagoon to the sea, and completely fences in and secures the point of land to the eastward, from whence our trade winds generally blow. This point of land communicates with the estate, by means of a gate placed between the lagoon and the steep bank; so that it is wholly and completely fenced in by the lagoon, the sea, and this steep bank. It is likewise nearly perfectly level, and consists of a loose sandy soil; and when the tide is in, water is to be found in every part of it, at the depth of about two feet and a half from the surface; this water, though brackish, is drinkable. Having read all the late

voyages

voyages to the South-Sea Islands, I always observed in them, that the Bread-Fruit Trees were described as principally growing in low situations, near the sea, from which I first formed my opinion, that this point of land was well adapted for their culture; and in consequence of this idea, I had a very ardent desire to obtain some plants, in order to try the experiment.

In 1792, a vessel arrived at Martinique, from the Isle of France, with several plants, which were said to be of the true Otaheite Bread-Fruit; in consequence of which I sent to Martinique, and eagerly purchased some of them; but, to my very great disappointment, I found, when they came to bear, that all of them were of that sort only, which produces nuts: but my chagrin on this occasion was soon relieved, by the arrival of Capt. Bligh, at St. Vincent, in his Majesty's ship the Providence, in 1793, with many plants of the true Otaheite Bread-

Bread-Fruit, some of which were landed at St. Vincent, and placed under the care of Dr. Anderson, who has the charge of the Botanic Garden there, and who, with great kindness, sent me three of those plants in June 1793. These three plants I planted in a garden near my mansion-house, in a very deep, rich, black soil, where I paid every possible attention to them, in the hope of procuring an abundance of suckers for my favourite point of land: they flourished exceedingly, and produced fruit in 1795; and these three trees still continue to flourish and bear fruit in great abundance. Till last year, however, I could not obtain even one sucker from them; in consequence of which, I wrote to Dr. Anderson on the subject, who advised me to remove the earth from above the uppermost roots, and to wound and even cut some of them in half. I followed his advice, and laid bare many of the roots,

and

and bisected them in October 1800, when they almost immediately began to shoot suckers in abundance; insomuch, that in December I had about 120 fine plants, which I planted in small wicker baskets, of about a gallon in size, first filling them with good rich loose soil: those baskets I placed in the shade, and near the water, with which I supplied them whenever the weather required it; and here I kept them during the dry season. I preferred placing the plants in baskets, to placing them in pots, because they are lighter, and are more easily removed from one place to another; and also because, when they are to be planted out in the land in which they are to remain, by planting the baskets with the plant in it, the plant will not be at all checked in its growth, as the baskets will soon rot in the ground, so that the roots of the plant easily extend themselves in the adjacent soil, without impediment. From this great and unexpected success in procuring

curing plants, I began very seriously to think of preparing the land at the Point for their reception; and as my visits to the Point were consequently very frequent, I perceived, that at very high tides the salt water flowed into some part of the land, on the lagoon side of it. In order, therefore, to guard against any ill consequence from this circumstance, I immediately formed a bank all round the lagoon side, for about three quarters of a mile in length, ten feet in breadth, and three feet in height, towards the land side, and shelving gradually to the water. This bank I formed of mud mixed with sand, and it is now perfectly solid, and water tight; and the influx of the sea has formed a very regular and easy sandy beach, all the way on the outside of the bank.

My next step was to plough one half of this point, in order to clear it of every noxious weed; for which purpose I ploughed it twice, and harrowed it twice

twice over; I then divided it into beds of 27 feet in breadth across the point, from the sea to the lagoon, and planted my plants in the middle of each bed, at the exact distance of 27 feet every way. I have already said, that brackish water was to be found all over this point at high water, at about $2\frac{1}{2}$ feet from the surface; and for some time, this circumstance made me uneasy, lest the brackish water should injure the trees, when their roots came to touch it; but accidentally reading a translation of Monsieur Labillardiere's voyage, in search of La Perouse, published by Stockdale in 1800, I met with the following remark, vol. 2, p. 105. "We walked some "time (says he) along the borders of "the shore, on which we saw a great "number of Bread-Fruit Trees in full "vigour, although their roots were "bathed with brackish water." Some time previous to reading this remark, I had tried the experiment, by taking a part

part of this point into a garden and pinery, in which I also planted about ten of my most forward Bread-Fruit Plants, and where they flourish and grow faster than in any other place I have yet seen. The garden and pinery also flourish admirably, which I attribute to the loose sandy texture of the soil, which absorbs any water immediately, and of course prevents any damage from excessive rains. In the dryest season, too, the garden is equally flourishing, as in rainy weather, by the rays of the sun drawing the water through this loose soil, for the nourishment of vegetables; so that what I had dreaded as an evil, proves to be of the greatest advantage, and produces a spot of land, of about 45 acres, which is regularly watered twice in twenty-four hours, in all seasons, and without any expense. When I considered the lively interest which the Society have taken, in being the first to recommend the procuring the plants of

Bread

Bread Fruit, from the South-Sea Islands to those of the West Indies, for the benefit of their inhabitants; I determined to send those papers immediately to the Society, though my Bread-Fruit Plantation is but in its infancy, and only yet contains 153 plants; but which, when completed, will contain 1300, or thereabout. I cannot reckon on more than 20 plants per month from the roots of my three old trees; but when those I have now planted begin to sucker, any number may be obtained, so as to complete the point of land in a short time.

I hope the detailed account I have now given of the Bread-Fruit Plants, and of the situation in which I have placed them, will prove satisfactory: and as I observe that there has been only one claim for a plantation of Bread-Fruit Trees, and that from Jamaica, in 1798, if it shall appear to the Society that, from the numbers I have now planted, and which I am increasing every

month, I am entitled to any premium, I shall esteem it an honour to receive it.

I am, SIR,

Your most obedient Servant,

JOSEPH ROBLEY.

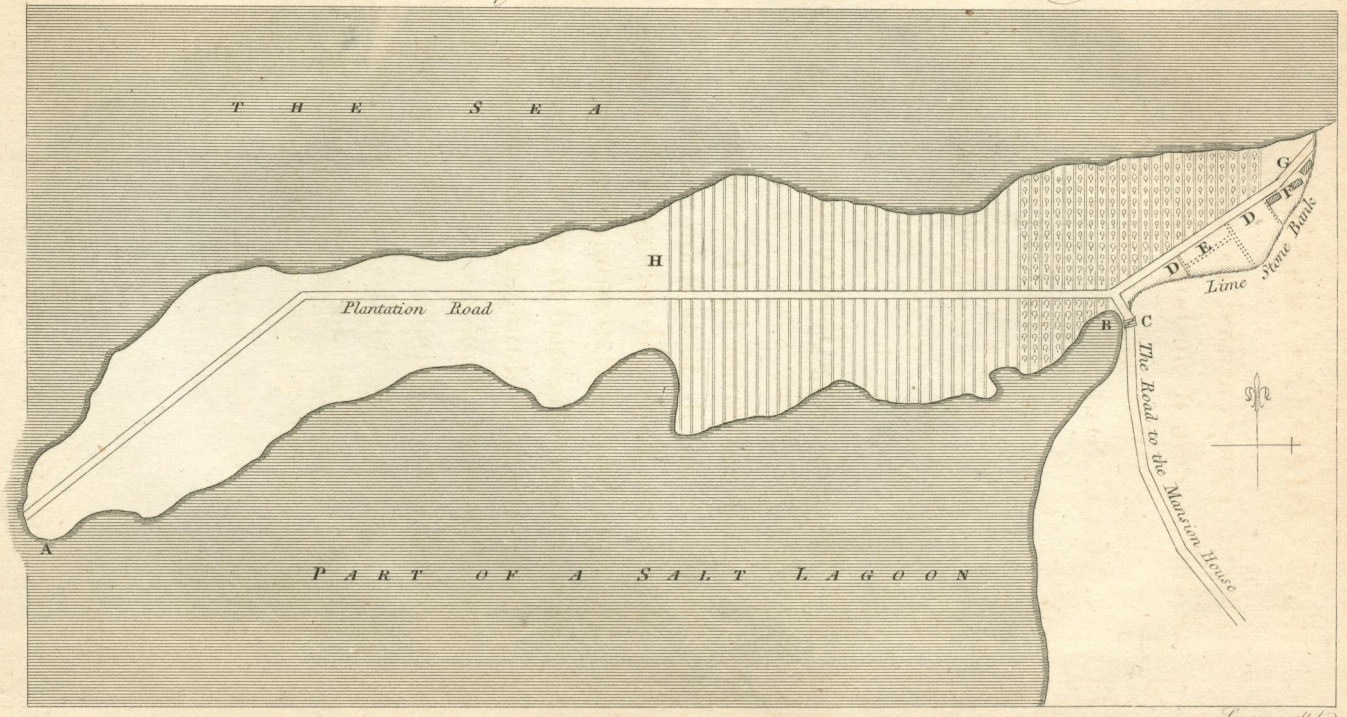
Tobago, Golden-Grove,
25th Aug. 1801.

To Mr. CHARLES TAYLOR.

Certificates from the Governor of the Island, from R. Robertson and Charles Wightman, Esqrs. Members of the Council, from Robert Paterson, Esq. Speaker of the Assembly, and from Mr. George Lyall, principal Manager of the Honourable President Robley's estates, accompanied these Papers, confirming the above statement, that 153 plants are now growing in a flourishing state, and are completely fenced in and protected.

The

Part of the Golden Grove Estate in Tobago.



Lowry sculpt.

The GOLD MEDAL of the Society was this Session voted to Dr. ANDERSON, of St. Vincent, for the following Communications on CLOVES and CINNAMON produced in that Island. Specimens of the Articles sent are preserved in the Society's Repository, for the inspection of the Public; and a coloured Engraving of the Clove Plant is here annexed to its Description.

Observations on the Clove Plant at St. Vincent, and the Cloves sent from thence to the Society.

SIR,

IF you conceive the specimens of Cloves accompanying this letter (being the first produced in the garden), with some observations on the plant,

merit the attention of the Society, you will do me the honour to present them.

I am, SIR,

Your most obedient Servant,

ALEX. ANDERSON.

Botanical Garden, St. Vincent,
April 23, 1800.

To the Secretary of the
Society of Arts, &c.

THE Clove is an elegant little tree: that in the garden now bearing, is about eight feet in height, and the stem, near the ground, is about two inches in diameter. That so small a tree should bear fruit, I ascribe to its being from a layer. The nature of the plant is not yet well known in the West Indies; all the information I have heretofore received as to the culture of it, has been

been for the most part from ignorance, or from ill intentions; and consequently has led me into errors on that subject, by which I have often lost the original plant: but I have always been so fortunate as to preserve an offspring by layers.

From the difficulty of preserving the plants, it naturally occurred to me, that I had adopted a soil not congenial to them, as I find that all other East-India plants thrive luxuriantly in the garden; and am by no means ignorant, that all plants, although originally from a barren soil, always prosper best in a rich one, when transplanted from their natural situation. I therefore tried them in the best soil I could select, adding thereto plenty of manure; at the same time, I also planted others of the same age and size in various other soils, without manure. The consequence has been, that those in the manured soil are thriving luxuriantly, of which that now bearing

is one; while the others have failed, or are so sickly, that they never will arrive at maturity.

Since this, I have fortunately met with the *Herbarium Amboinense* of Rumphius, and find that he corroborates my idea.

It is a plant that loves the shelter of other trees to windward of it, but not so as to overshade it, as Rumphius observes. When fully exposed to the wind, it does not answer so well; but rich land, or manure in bad land, is what will answer best with it.

It is propagated by laying down the young branches in boxes, or in the ground, if they can be brought in contact with it. If the earth is kept moist, they will root in six months.

I suspect that the best mode in rearing it from seeds, is to put them in the earth where the plants are to remain; and if planted in the manner of a thicket, or from eight to ten feet apart, they

they will prosper better than when farther separated or scattered. This I find to be the case with most plants of the same species.

As all botanical descriptions of the Clove appear to me to be imperfect, at least agree not with the plant that has flowered in the garden, I have ventured to inclose an account of the fructification as the parts appeared to me. There are probably more than one species, as Rumphius's figures of it differ.

The specimens of the spice which I have sent are dried by various modes, some according to the directions of Rumphius; by some of the processes, they are larger than by others. Whether that may be the only advantage gained, or which is the best mode of curing it, rests with the Society to determine. It is to be observed, that every part of the plant, in an eminent degree, possesses the same property as to taste. All these specimens are gathered in the same

stage, viz. when the flower-bud appears entirely red, which is when the corolla begins to rise previously to its falling off. This happens at sun-set. The morning of the same day is the proper time to collect them for drying. There is something very singular as to the formation of the flowers. In September, 1799, clusters of them were so far formed, that I looked for their expansion every day; none of them however opened till the March following, a period of six months. I began to imagine that, from the smallness of the plant, it had not sufficient vigour to bring them to maturity. However, I was agreeably disappointed; scarcely more than two flowers, and frequently only one, expands in the same day. To have the spice therefore in perfection, it is requisite to go over them every morning, collecting those that have the appearance of opening in the evening.

The leaves are a good substitute for the fruit, for culinary purposes.

CARYO-

CARYOPHYLLUS AROMATICUS. CLOVE.

Perianthium quadripartitum, laciniæ ovatæ, concavæ, persistentes.

Petala quatuor ovata, sessilia, conniventia, clausa, caduca.

Nectarium tetragonum integerrimum, concavum, apicem germinis ringens.

Filamenta numerosa subulata, in base calycis inserta, antheræ ovatæ, erectæ, bilocularios.

Germen inferum, clavatum—Stylus subulatus, filamentis brevior. Stigma obtusum, drupa ovato-turbinata, calyce incrassato coronata.

Nux oblonga, glabra, unilocularis.

REFERENCES TO THE ANNEXED COLOURED ENGRAVING.

No. 1. The natural size of the flower, and mode of its inflorescence.

2. The

2. The rudiment of the fruit in a longitudinal section, to show the insertion of the stamina.
3. The petals cohering; the stamina gradually raising them.
4. The petals ready to fall off.
5. The petals as they fall off adhering in a calyptra.
6. The natural size of one of the petals.
7. The fruit nearly ripe.
8. Longitudinal section through the middle.

*** From examination of the specimens of the Cloves sent, before a Committee appointed by the Society, it appeared that those dried in the smoke were damaged by it; that those dried in the sun were but of an indifferent quality; but that the Cloves dried in the shade were very little inferior to those produced in the East Indies, and well worth encouragement.

Observations

Observations on the Cinnamon from St. Vincent.

SIR,

AS the small quantity of Cinnamon I had the honour of sending to the Society last year, was insufficient to form a just idea as to its quality, I now send a large parcel in a box, dried at different times, and taken from branches of young trees of different ages; from which, it is hoped, the Society will be able to judge of the quality, and to decide which is the most proper period for taking it off, and the best mode of drying it. I am, with great respect,

SIR,

Your obedient humble Servant,

ALEXANDER ANDERSON.

Botanical Garden, St. Vincent, July 20, 1800.

To the Secretary of the Society of Arts, &c.

*** The

*** The quantity of Cinnamon sent from Dr. Anderson appears to have been originally more than twenty pounds in weight; but the package had been opened at the Custom-House, and the samples intermixed, so as not to permit the Society to recognize the particular distinctions noticed by Dr. Anderson: there was, however, an evident difference in some of the samples, in respect to appearance, taste, and smell; they were found generally to be inferior to East-India Cinnamon, but much superior to Cassia.

A further account of the varieties of the Cinnamon-plant, and some observations on the Clove-plant, relative to their state in the garden of St. Vincent, in the year 1798, from a communication by Dr. Anderson to the Society, may be found in the XVIth Volume of the Society's Transactions, p. 333.

Caryophyllus aromaticus

or Clove Plant

from Dr. Anderson of St. Vincent.